

Appl. No. 10/661,113  
Response dated September 28, 2004  
Reply to Office Action of Jun. 28, 2004

### **REMARKS**

The claims have been amended. No new matter has been added to the application.

Claims 12 and 33 were objected to. These claims have been amended to overcome this objection

Claims 1-5, 7-9, 23, 24, 26, and 28-37 were rejected under 35 U.S.C. § 102(b) as being anticipated by Cathers et al. Applicants respectfully traverse this rejection.

Each of the rejected independent claims includes the restriction that the seals are flexible. Cathers et al. does not have such a flexible seal. As noted, Cathers et al. has a hard gate or door that is a hard pivoting seal. The present invention teaches a vessel that will operate in displacement mode and in hovercraft mode, in part because of its use of flexible seals as claimed.

Claims 6, 12-15, 18-22, 25, 27, 38 and 39 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Cathers et al in view of Whitener. Applicants respectfully submit that these claims are allowable.

Claim 12 has been amended to point out that the propulsion units are aligned with the hulls. In contrast, Cathers et al offsets the propulsion units with the hulls.

Claims 10, 11, 16, and 17 were objected to as being dependent upon a rejected base claim, but were indicated to be allowable if rewritten in independent form. The claims have been so rewritten and are respectfully submitted to be allowable.

Attached is an information disclosure statement showing a craft which is distinguishable from the present invention as claimed in that its hulls have chines. Please charge the \$180.00 fee to Deposit Account No. 50-0694.

Applicant respectfully submits that the application is in condition for allowance. A Notice of Allowance is hereby respectfully requested.

Should the Examiner feel that a telephone conference would advance the prosecution of this application, he is encouraged to contact the undersigned at the telephone number listed below.

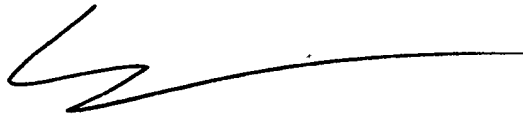
Applicant respectfully petitions the Commissioner for any extension of time necessary to

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Response dated September 28, 2004  
Reply to Office Action of Jun. 28, 2004

render this paper timely.

Please charge any additional fees due or credit any overpayment to Deposit Account No. 50-0694.

Respectfully submitted,



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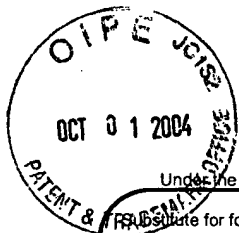
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Seth M. Nehrbass, Reg. No. 31,281

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PTO/SB/08B (08-03)

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**INFORMATION DISCLOSURE  
STATEMENT BY APPLICANT**

(Use as many sheets as necessary)

**Complete if Known**

Application Number	10/661,113
Filing Date	09-12-2003
First Named Inventor	Kenneth Maloney
Art Unit	3617
Examiner Name	Jesus D. Sotelo
Attorney Docket Number	A02203US (98238.6)

Sheet 1 of 1

**NON PATENT LITERATURE DOCUMENTS**

Examiner Initials*	Cite No. <sup>1</sup>	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T <sup>2</sup>
		JOHN LEWTHWAITE, "The PACSCAT Concept and its application to Fast Landing Craft", presented at MACC Multi Agency Craft Conference 2002, The Pulse of Technology, 18-20 June 2002, Naval Amphibious Base Little Creek, Norfolk (19 pages)	

Examiner Signature		Date Considered	
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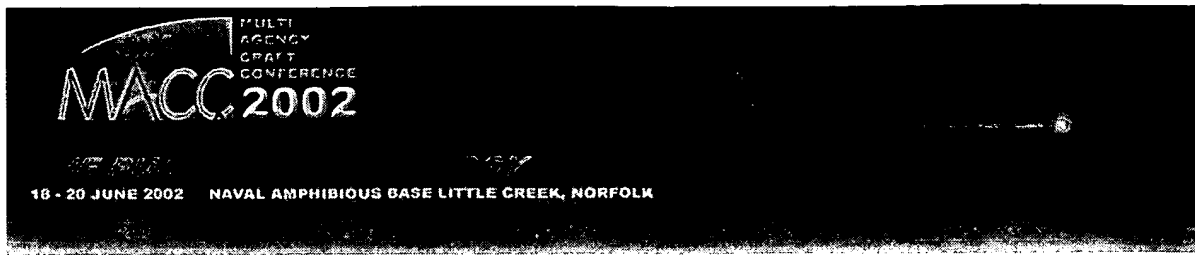
\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

<sup>1</sup> Applicant's unique citation designation number (optional). <sup>2</sup> Applicant is to place a check mark here if English language Translation is attached.

This collection of information is required by 37 CFR 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO:

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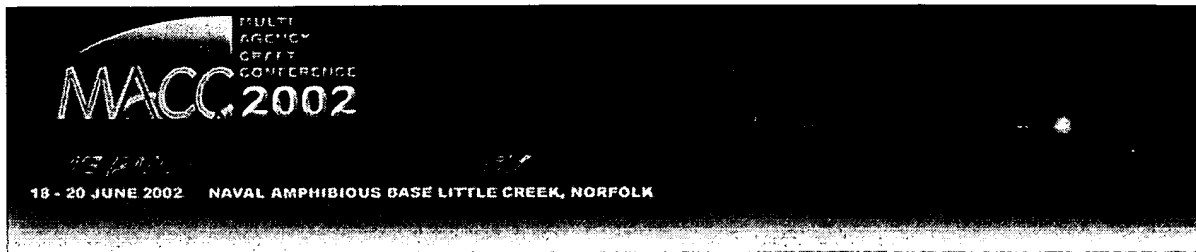


**The PACSCAT Concept and its application to Fast Landing Craft  
IMAA Ltd**

**By: John Lewthwaite**

**Abstract**

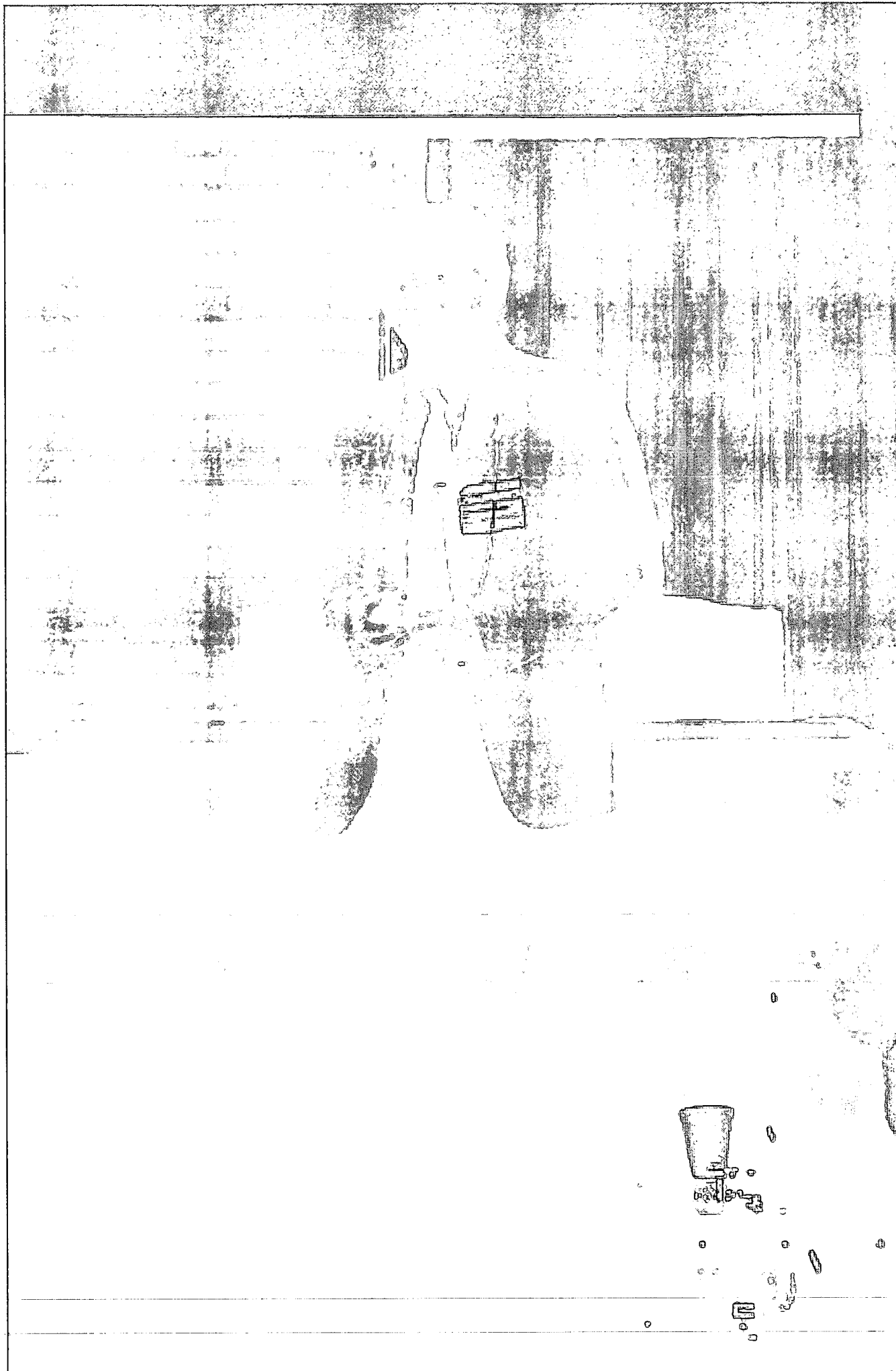
A novel hullform is described which is designed to carry heavy payloads at relatively high speeds. An example is given of an application for a possible US requirement for a Fast Landing Craft. The performance is predicted based on trials with a 35ft manned experimental model tested in southern England.



**Mr. John Lewthwaite  
Managing Director,  
IMAA Ltd.**

**Biographical Sketch**

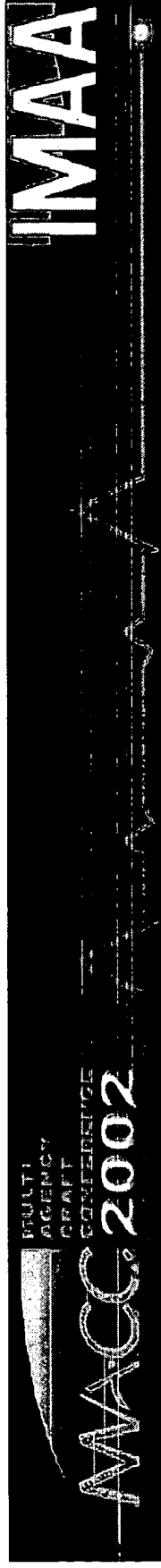
John Lewthwaite is Managing Director of the UK design consultancy IMAA Ltd., and has forty years experience in the fast craft business. He is a Member of both the Royal Institution of Naval Architects and the American Society of Naval Engineers.





# **The PACSCAT concept and its application to Fast Landing Craft**

**John C Lewthwaite, IMAA Ltd., UK**



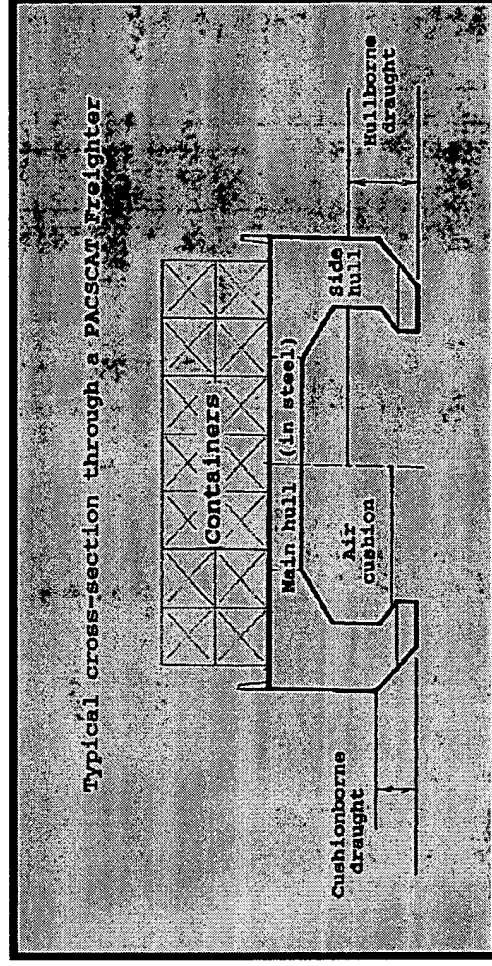
# The PACSCAT concept

- Partial Air Cushion Supported CATamaran
- Ability to carry heavy loads at high speed
- Low draught ; variable by lift system adjustment



# PACSCAT Hullform

- Typical cross-section.
- Semi-swath form.
- Approx. 50% buoyant fraction.
- Broad keels for docking or beaching.



# • PACSCAT Advantages

- Reduced resistance compared with a catamaran
- Variable draught by adjusting lift system
- Modest cushion pressures ( < 150 psf)
- Wide sidehulls (m/c & accommodation spaces)
- Suited to waterjet propulsion

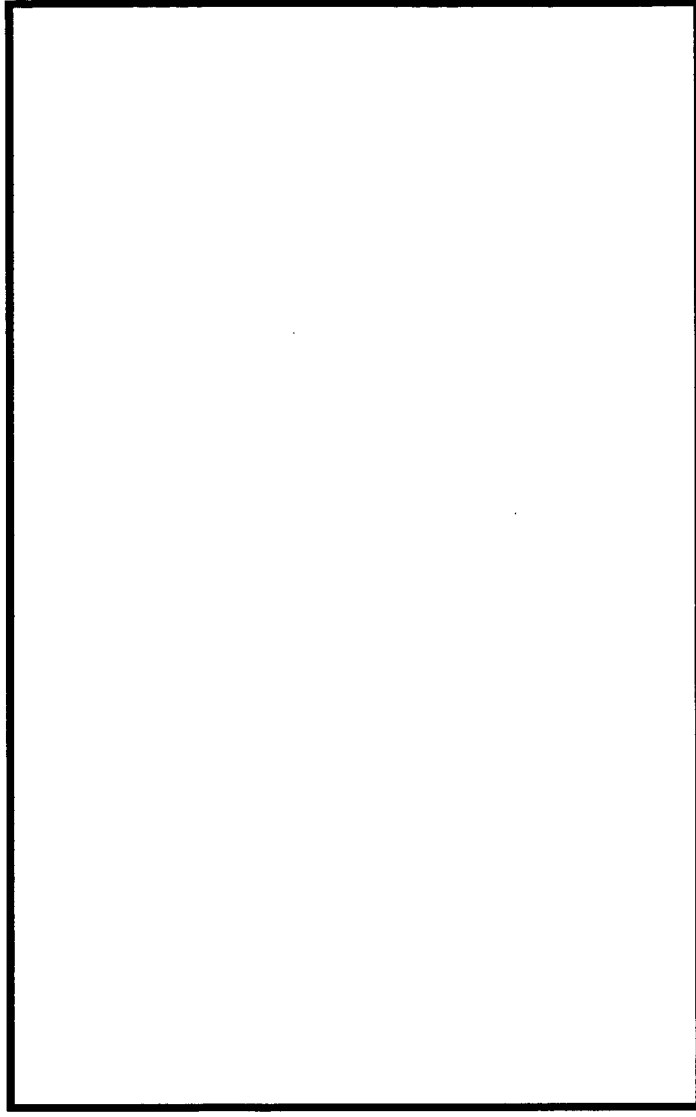
# • PACSCAT River Freighter

2000t deadweight at

20 knots

Shallow water  
operations (< 3m)

RoRo or LoLo  
configuration



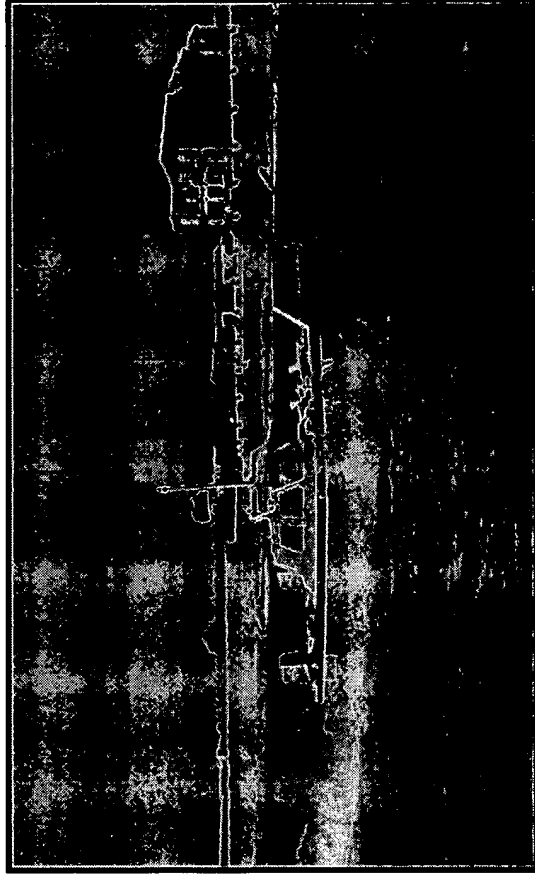
# PACSCAT Fast Landing Craft

- Heavy payloads at high speeds.
- Landing craft applications.



# IMAA Manned Model

- 10m long by 2.5m beam  
(34ft by 8ft)
- Outboard / waterjet propulsion
- Petrol engine + centrifugal fan  
lift system
- 20kt performance at 5t AUW
- Cabin for two crew

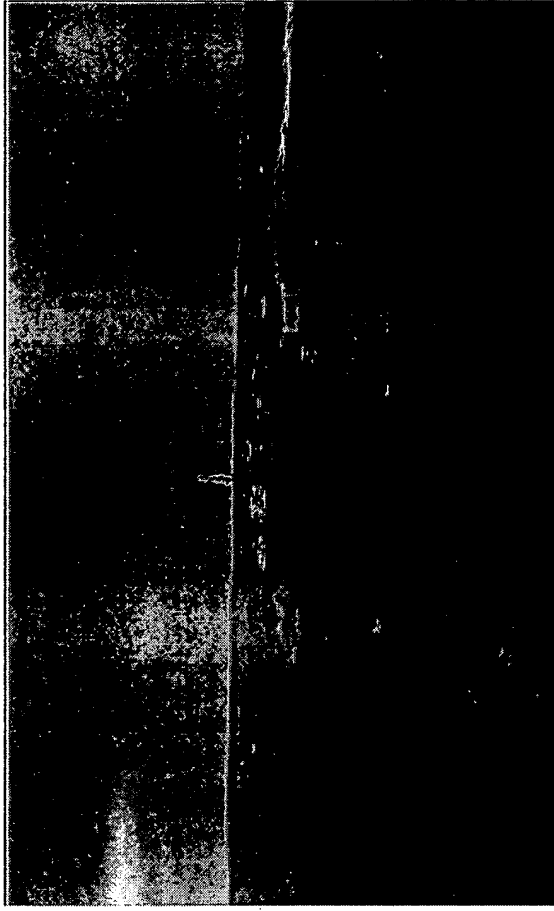


# IMAA Manned Model

**Tests in a range of  
weather conditions.**

**Also various weights**

**And beaching trials**



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# IMAA Manned Model

**Beaching trials**

**Ability to land dry**



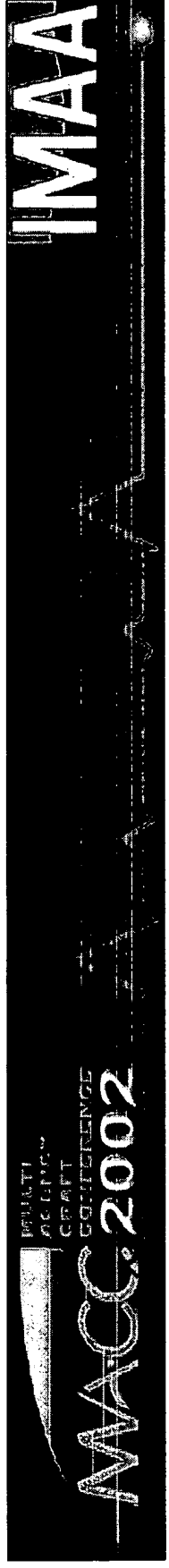
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**IMAA**



- Assumed requirements
- Lift system operation
- Powering & performance
- Sea-keeping & motions





- Assumed requirements:
- Length oa = 42m (140ft)
- Beam oa = 14m (45ft)
- Draft (min) = 1.6m (5.5ft)
- Full load displacement = 500t
- Disposable load = 200t

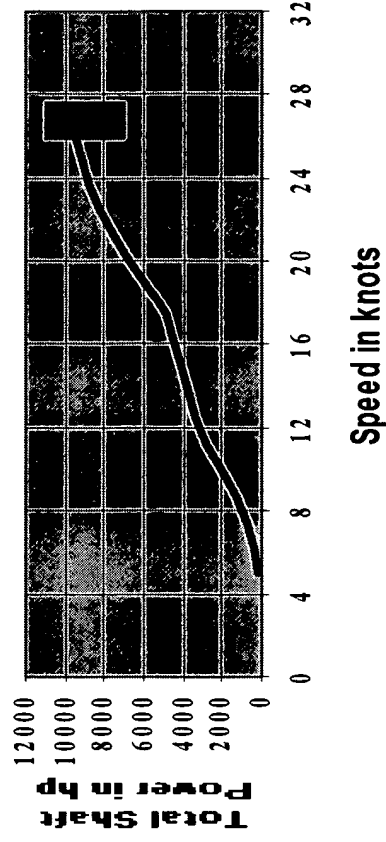
# PACSCAT US FLC

- Lift system operation
- Floating draft = 1.6m (5.5ft)
- On cushion draft = 1.0m (3.3ft)
- Cushion press. = 5.0kPa (105psf)
- Air flow rate =  $80\text{m}^3/\text{s}$  (2800cfs)

# PACSCAT US ELC Powering

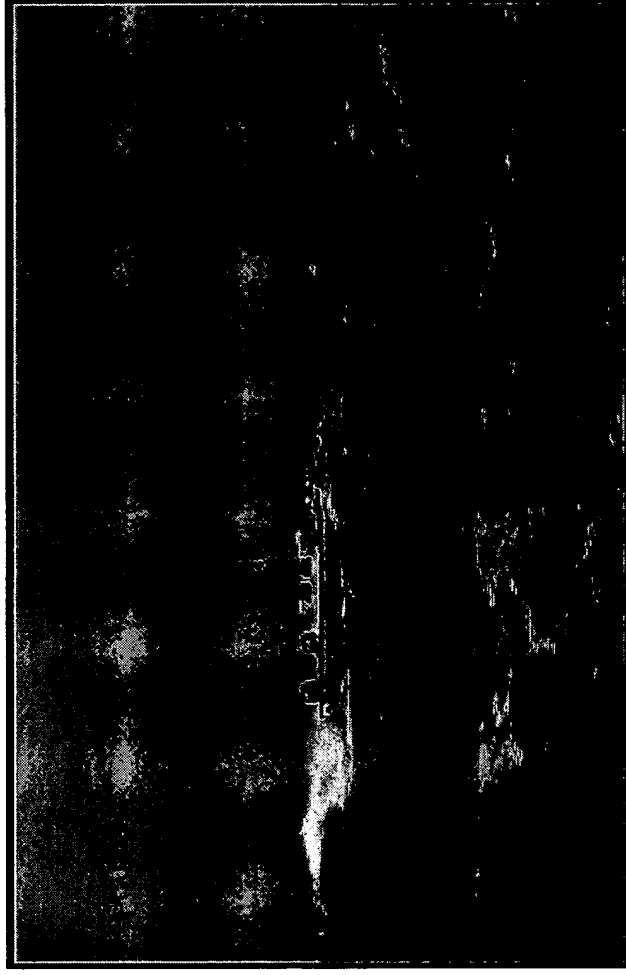
- At 500t AUW  
in calm & deep water
- Propulsion  
2 x 4,550hp for 25kt
- Lift  
2 x 370hp

**PACSCAT Power required**



# IMAA Manned Model

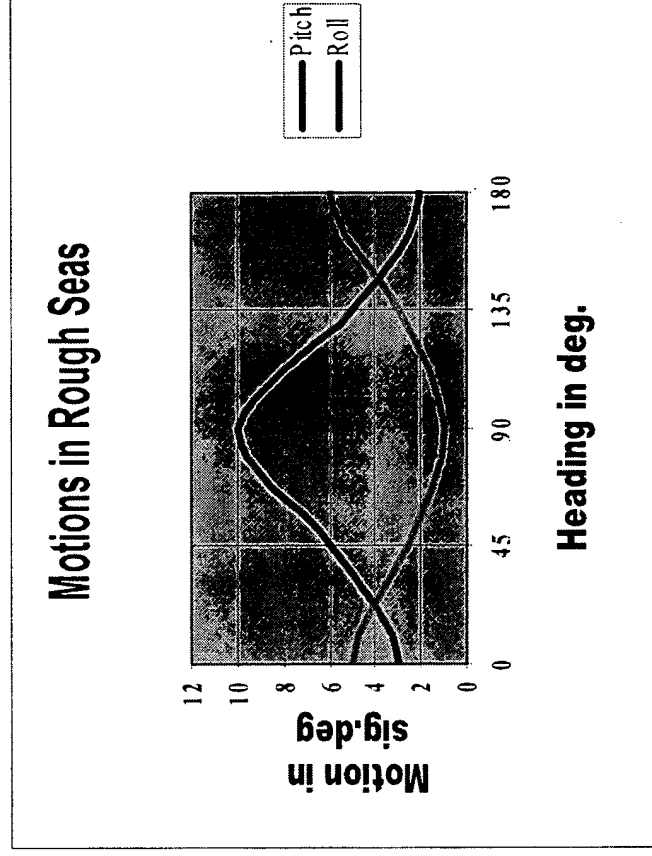
- Represents 1:4 scale of proposed US FLC
- Here seen at a representative speed of 20kt in 2.6m (8.5') head-seas (ie. Sea State 4).



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# •PACSCAT-US FLC Sea-keeping

- Motions in Rough Seas  
Sea State 4 - 2.6m (8.5') sig.ht
- Pitch - 6 deg sig. in head-seas  
Roll - 10 deg sig. in beam-seas
- Vertical accn. <0.1 g rms  
Surge accn. <0.2 g max.  
Sway accn. <0.1 g max.



## Future developments

- River Freighter to be developed under grant from European Commission
- UK MoD interest in Fast Landing Craft
- US interest ?

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